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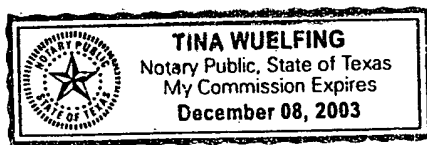
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We certify that the attached English translation conforms essentially to the original Russian language.

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Operations Manager

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USSR Inventor's Certificate Patent No. 1009457 A
[Title page and abstract only, as requested]

Job No.: 973-87246

Ref: PARA. 008IS

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Committee of the Russian Federation
for Patents and Trademarks

DESCRIPTION OF INVENTION
for Inventor's Certificate
PATENT NO. 1009457A

Int. Cl. ⁵ :	A 61 F 1/22
Filing No.:	3316206/28-13
Filing Date:	July 15, 1981
Publication Date:	April 7, 1983 Bulletin No. 13

ARTIFICIAL PERICARDIUM

Inventors:	Ya. P. Kulik
Applicant:	Laboratory for Problems of Auxiliary Circulation, Blagoveshchensk Medical Institute
Reference:	Inventor's Certificate from Application No. 3304255/28-13, Cl. A 61 M 1/03, 1981.

1. An artificial pericardium made in the form of an envelope of biologically inert material, which is distinguished by the fact that, with the goal of supporting the possibility of using it with the natural heart and preventing intergrowth between the heart and surrounding tissues, the envelope is made in the form of a perforated capsule open in the direction of the base of the heart and is provided with a device for securing it onto the heart.

2. An artificial pericardium as in Claim 1, which is distinguished by the fact that the device for securing the envelope is made in the form of straps for encircling the aortic arch.

* * *



СОЮЗ СОВЕТСКИХ
СОЦИАЛИСТИЧЕСКИХ
РЕСПУБЛИК

(19) SU (11) 1009457 A

3(50) A 61 F 1/22

ГОСУДАРСТВЕННЫЙ КОМИТЕТ СССР
ПО ДЕЛАМ ИЗОБРЕТЕНИЙ И ОТКРЫТИЙ

ОПИСАНИЕ ИЗОБРЕТЕНИЯ

К АВТОРСКОМУ СВИДЕТЕЛЬСТВУ

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(72) Я. П. Кулик

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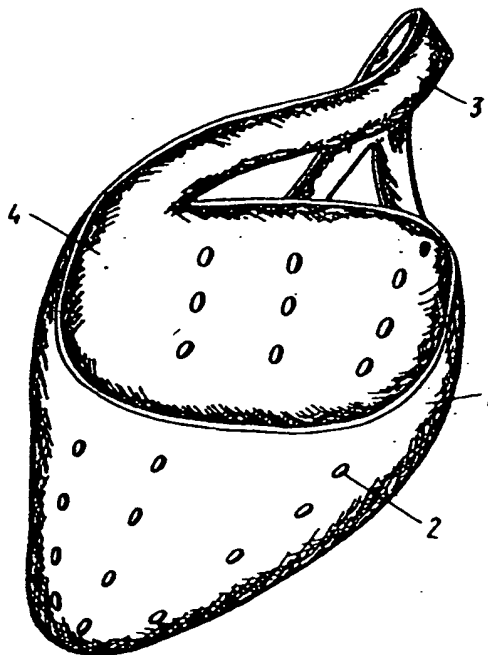
(53) 615.475(088.8)

(56) 1. Авторское свидетельство
по заявке № 3304255/28-13,
кл. А 61 М 1/03, 1981.

(54) (57) 1. ИСКУССТВЕННЫЙ ПЕРИКАРД,
выполненный в виде оболочки из биоло-
гически нейтрального материала, о т-

л и ч а ю щ и я с я тем, что, с це-
лью обеспечения возможности исполь-
зования его с естественным сердцем
и предотвращения при этом сращений
между сердцем и окружающими тканя-
ми, оболочка выполнена в виде откры-
той в сторону основания сердца пер-
форированной капсулы и снабжена при-
способлением для фиксации ее на
сердце.

2. Искусственный перикард по п.1,
о т л и ч а ю щ и я с я тем, что
приспособление для фиксации выполне-
но в виде лямок для охвата дуги аор-
ты.



Фиг. 1

(19) SU (11) 1009457 A

Изобретение относится к медицине, в частности к искусственным органам, и может быть применено для предупреждения спаечных процессов между сердцем и перикардом после операций на сердце, трансплантации и реплантации сердца, или при временном подключении интракорпорально искусственного сердца.

Известен искусственный перикард, выполненный в виде оболочки из биологически нейтрального материала, для размещения в нем искусственного сердца с целью предотвращения тепловых опогов окружающих тканей [1].

Однако этот искусственный перикард не может быть использован с естественным сердцем для предотвращения сращений между сердцем и окружающими тканями после хирургических операций на сердце.

Развивающиеся спайки иногда исключают возможность повторных операций на сердце и трансплантацию сердца после временного подключения интракорпорально искусственного сердца, что разрывает логическую цепь разрабатываемых этапов в проблеме повторных операций трансплантации и реплантации сердца. Появление спаек между работающим сердцем и окружающим его перикардом резко ухудшает сократительную функцию мышцы сердца.

Целью изобретения является обеспечение возможности использования искусственного перикарда с естественным сердцем и предотвращения при этом сращений между сердцем и окружающими тканями.

Цель достигается тем, что в искусственном перикарде, выполненном в виде оболочки из биологически нейтрального материала, оболочка выполнена в виде открытой в сторону основания сердца перфорированной капсулы и снабжена приспособлением

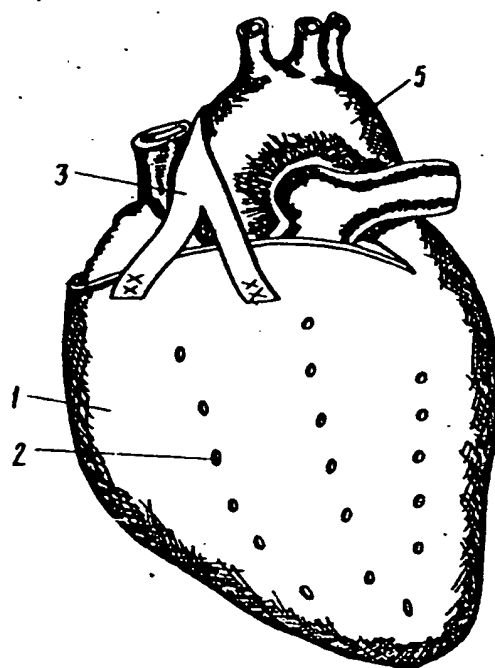
для фиксации ее на сердце. Кроме того, приспособление для фиксации выполнено в виде лямок для охвата дуги аорты.

На фиг. 1 показан предлагаемый искусственный перикард; на фиг. 2 - тот же перикард, в полости которого находится сердце.

Предлагаемый искусственный перикард содержит оболочку 1 в форме сердца с перфорационными отверстиями 2 по всей поверхности. Для фиксации его на сердце имеются лямки 3. Полость 4 оболочки 1 открыта в сторону основания сердца. После операции на сердце последнее помещают в полость 4 оболочки 1 искусственного перикарда и лямками 3, проведенными через поперечный синус, охватывают дугу аорты 5 и их концы подшивают к краю оболочки 1.

После проведенных манипуляций оболочка 1 искусственного перикарда надежно зафиксирована на сердце и покрывает всю его поверхность, создавая интерпозицию между наружной поверхностью сердца и внутренней поверхностью естественного перикарда, исключая их сращение. Перфорационные отверстия 2 обеспечивают свободный жидкостно-биологический обмен между поверхностью сердца и полостью перикарда, в которой находится, например, серозная жидкость, облегчая скольжение стенок сердца при сокращении.

Предлагаемый искусственный перикард прост по конструкции и в применении, удобен и надежен в работе, не нарушает естественные физиологические процессы между органами, исключает сращение поверхности оперированного органа с окружающими его тканями, значительно улучшая результат проводимой операции.



Фиг. 2

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USSR Inventor's Certificate Patent No. 1009457 A
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DESCRIPTION OF INVENTION
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Int. Cl.⁵: A 61 F 1/22
Filing No.: 3316206/28-13
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ARTIFICIAL PERICARDIUM

Inventors: Ya. P. Kulik
Applicant: Laboratory for Problems of
Auxiliary Circulation,
Blagoveshchensk Medical Institute
Reference: Inventor's Certificate from
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German Patent No. 295 17 393 U1

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Soviet Union
SU 1009457 A

ARTIFICIAL PERICARDIUM
[Iskusstvennyi Perikard]

Ya. P. Kulik

UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. April 1997

Translated by: Schreiber Translations, Inc.

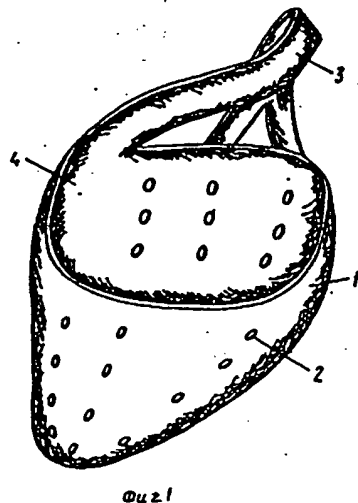
Country : Soviet Union
Document No. : 1009457 A
Document Type : Invention specification
Language : Russian
Inventor : Ya. P. Kulik
Applicant : Task Laboratory for Circulation
Aids, Blagoveshchensk Medical
Institute
IPC : A 61 F 1/22
Application Date : July 15, 1981
Publication Date : July 4, 1983
Foreign Language Title : ISKUSSTVENNYI PERIKARD
English Title : ARTIFICIAL PERICARDIUM PATIENTS

/1¹

1. An ARTIFICIAL PERICARDIUM manufactured in the form of a shell made of biologically neutral material, characterized in that, with a view to ensuring its usage in conjunction with the natural heart and, at the same time, preventing adhesion of the heart with its surrounding tissues, the shell is designed in the form of a perforated capsule that opens towards the base of the heart, and is equipped with a device to fasten it to the heart.

2. Artificial pericardium as described in item 1, characterized in that the fastening device is designed in the form of straps spanning the aortic arch.

Figure 1:



¹Numbers in the margin indicate pagination in the foreign text.

The invention pertains to medicine, in particular, to artificial organs, and may be applied to prevent adhesion processes between the heart and the pericardium that occur after heart surgeries, heart transplanting and replanting, or in the event of temporary intracorporal connection to an artificial heart.

An artificial pericardium is known that is designed in the form of a shell made of a biologically neutral material, to accommodate an artificial heart therein, for the purpose of preventing thermal burns to surrounding tissues [1].

However, this artificial pericardium cannot be used in conjunction with a natural heart, to prevent adhesion between the heart and the pericardium that occurs after heart surgeries.

The evolution of commissures sometimes preclude the possibility of repeat heart surgeries and heart transplants following a temporary intracorporal connection to an artificial heart, which ruptures the logical succession of investigated phases in the problem of repeat heart transplanting or replanting. The evolution of commissures between a functioning heart and its pericardium leads to a dramatic decrease in the contractional function of the heart muscle.]

The purpose of invention is to ensure feasibility of using an artificial pericardium in conjunction with a natural heart and, at the same time, preventing adhesion between the heart and its surrounding tissues.

The purpose is achieved by designing the shell in the form of a perforated capsule that opens towards the base of the heart, and is equipped with a device to fasten it to the heart. In addition, the fastening device is manufactured in the form of straps spanning the aortic arch.

Fig. 1 shows the suggested artificial pericardium; Fig. 2 shows the same pericardium, with the heart located in its cavity.

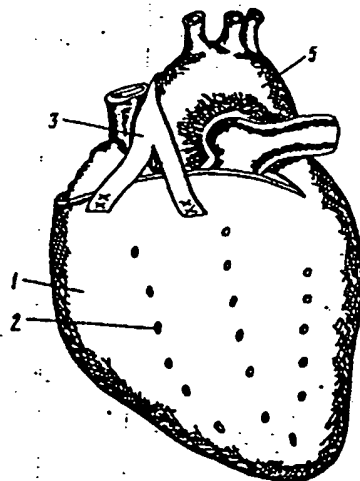
The suggested artificial pericardium contains shell 1 in the form of a heart with perforated 2 openings throughout its surface. To fasten it to the heart, straps 3 are provided. The cavity 4 of shell 1 opens towards the heart base. Following a heart surgery, the heart is placed into cavity 4 of shell 3 of the artificial pericardium; while straps 3 running through the oblique sinus, spanning the aortic arch 5, and their ends sutured to the edge of shell 1.

Upon completion of manipulations, the shell 1 is reliably fastened onto the heart, covering its entire surface and creating an element interposed between the heart's external surface and the internal surface of the natural pericardium, precluding their adhesion. Perforated openings 2 ensure free fluid exchange and biological exchange between the heart's surface and the pericardium cavity which contains, e.g., serous fluid that facilitates the heart walls sliding during contractions.

The suggested artificial pericardium is straightforward in design and simple to use, convenient and reliable in operation, does not interfere with natural physiological processes that go

on between organs, precludes the adhesion of the organ that underwent surgery with its surrounding tissues, significantly improving the outcome of the surgery.

Figure 2:



002.2

Compiled by Ye. Godin

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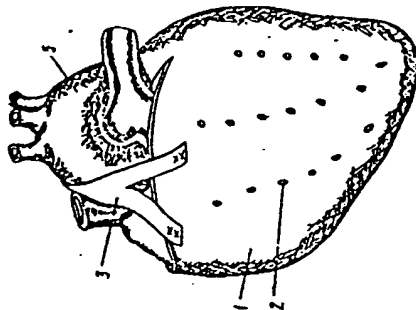
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BLAG = ★ P32 84-035872/06 ★ SU 1009-457-A
Artificial pericardium - has perforated capsule open at side of
base of heart with fastening straps
BLAGOVESHCHENSK BLO 15.07.81-SU-316206
(07.04.83) A611-01/22
15.07.81 as 316206 (1462AS)



To assure the possibility of use with a natural heart without the risk of adhesions developing between the heart and the surrounding tissues, the casing formed from biologically neutral material is made in the form of a capsule (1) perforated with apertures (2) which is open at the side of the base of the heart and is equipped with a device serving to fix it in position on the heart.

The fastening device is made in the form of straps (3) which are taken through the transverse sinus, around the arch of the aorta (5), and then their ends sewn to casing (1)'s edge. Bul.13/7.4.83. (3pp Dwg.No.2/2)

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